CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

**DATE:** March 29, 2006

**TO:** Interested Parties

**FROM**: Connie Bruins, Compliance Project Manager

**SUBJECT:** Palomar Energy Project (01-AFC-24C)
**Preliminary Staff Analysis** of Proposed Modification to Use Raw Water as a Backup Supply to Recycled Water

On January 11, 2006, the California Energy Commission received a petition from Palomar Energy, LLC, to amend the Energy Commission Decision for the Palomar Energy Project.

The Palomar Energy Project is a 546-megawatt combined cycle power plant located in the City of Escondido in San Diego County. The project was certified by the Energy Commission on August 6, 2003, and is currently in the commissioning phase of construction. Commercial operation is expected in April 2006.

Palomar is seeking approval to allow the project to utilize the City of Escondido's backup raw water supply when recycled water is unavailable due to maintenance or events beyond the City's control.

Energy Commission staff reviewed the petition and is assessing the impacts of this proposal on environmental quality, public health and safety. Staff's preliminary analysis proposes various possible revisions to existing Condition of Certification Soil and Water-5 and the addition of two new conditions, Soil and Water-8 and -9.

The Commission's Siting Committee will conduct a workshop on April 5, 2006 to discuss staff's proposed revisions to the conditions of certification. Following the workshop, staff will consider the comments it receives and publish a final analysis and recommendation.

A public hearing for the purpose of approving or denying the amendment proposal will be held at the Energy Commission business meeting on April 12, 2006, or at a later date if necessary.

The amendment petition and workshop notice have been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. Staff's preliminary analysis is enclosed for your information and review. Staff's preliminary analysis, final analysis and the order (if the amendment is approved) will also be posted on the webpage. If

you have comments on this preliminary analysis, please submit them to me at the address below prior to the Committee Workshop on April 5, 2006.

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Comments may be submitted by fax to (916) 654-3882, or by e-mail to cbruins@energy.state.ca.us. If you have any questions, please contact me at (916) 654-4545.

Enclosure

Mail List #7152

**AMENDMENT PETITION TO USE RAW WATER AS BACKUP TO RECYCLED WATER**

**PRELIMINARY STAFF ANALYSIS OF SOIL AND WATER RESOURCES PALOMAR ENERGY CENTER (01-AFC-24C)**

**NATASHA NELSON and BRIAN ELLIS**

**MARCH 29, 2006**

## SUMMARY OF ANALYSIS

The Palomar Energy Center (PEC) is a natural gas-fired, combined cycle power plant with a nominal electrical power output of 550 MW. The PEC was licensed by the California Energy Commission in August 2003 under the name "Palomar Energy Project." The name was changed at the Energy Commission March 15, 2006 Business Meeting.

On January 11, 2006 Palomar Energy Center submitted an amendment petition for its project as allowed for by Energy Commission regulations. The project owner has requested a change to the license conditions to allow the use of raw water that the City of Escondido (City) plans to add to its recycled water distribution system as an emergency backup supply for all of its recycled water customers. There would not be a physical change to the power plant. Staff determined that the proposed modifications could impact Soil and Water Resources.

Staff reviewed the amendment materials, the original Commission Decision for the Palomar Energy Center (01-AFC-17) dated December 22, 2003 (CEC 2003b), and the Staff Assessment for that AFC dated May 23, 2003 (CEC 2003a). Staff spoke with Department of Health Services (Stone 2006). Staff has further reviewed any changes in laws, ordinances, regulations and standards (LORS), the environment, and the project since the Commission decision in early 2003. Where potential significant impacts were identified, Staff proposed mitigation measures to reduce the potential impacts to less than significant levels. Staff recommends amending condition of certification SOIL&WATER 5 in the Commission Decision and adding conditions of certification SOIL&WATER 8 & 9 to ensure the amended project complies with all applicable LORS.

## BACKGROUND ON THE AMENDMENT REQUEST

The PEC was licensed to use only recycled water for power plant cooling. At the time of licensing, the project's recycled water supply, produced by the City of Escondido, was considered to be highly reliable. During a seven year period beginning in 1997, the HARRF experienced only three days of operational outages in recycled water production. The project owner considered the PEC's water supply to have a sufficient level of reliability so that a backup supply would not be necessary (CEC 2002a).

Extended multiple-day outages of recycled water production in 2004 and 2005 have changed the PEC's water supply scenario. The City of Escondido is now developing an emergency backup raw water supply for its current and future recycled water customers, including the PEC, to use when recycled water is unavailable. The City's project is proceeding under a Notice of Exemption approved by the city council. The project owner of the PEC is requesting a change to its license which would allow this backup supply of raw water to be used when necessary.

Lengthy outages at HARRF in 2004, 2005, and early 2006 (during construction and commissioning) resulted in the PEC seeking a temporary backup water source to prevent delays in its schedule. After the first outage, the PEC was allowed on a temporary basis to begin using fresh water from a fire hydrant at the project site. The Energy Commission staff approval and limitations were formalized in a letter to the project owner dated December 30, 2005. In 2006, the project owner was notified of a scheduled outage in the potable backup supply and requested the ability to use raw water during that planned two week outage. The raw water would come from a temporary above-ground pipe built by the City to back up their recycled water system, in the same configuration as the permanent connection discussed here. Energy Commission staff issued a letter on February 6, 2006 authorizing this temporary use under the same limits previously imposed for fresh water. These authorizations were emergency actions to prevent delays in the construction of an important new power supply for the San Diego region and were intended to be temporary pending a formal amendment.

## REGIONAL AND VICINITY DESCRIPTION

The PEC site is located in San Diego County with mild but dry conditions. The power plant was strategically located to be near a recycled water treatment plant and within an industrial park.

The Hale Avenue Resource Recovery Facility (HARRF) is a publicly owned treatment works owned by the City of Escondido which treats residential, commercial, and industrial wastewater. Built in 1959, the HARRF underwent upgrades to all its major processes during a seven-year period from 1998-2005. Recycled water is generated at the HARRF and delivered to the Rincon del Diablo Municipal Water District (Rincon), which has jurisdiction over the area where Palomar Energy Project is located. As such, Rincon is the provider to the PEC for both recycled water and potable water. It is noteworthy that this area has only one treatment plant supplying recycled water, whereas other jurisdictions have more than one.

## ENVIRONMENTAL SETTING

## PEC WATER SUPPLY

The Palomar Energy Center was licensed to use recycled water for its cooling needs. During the siting proceeding, the reliability of the HARRF was undisputed, and the project owner did not propose any backup supply in the event of a disruption of service. In adding a backup supply, the proposed project modification changes the source of the

water from one in which there is treatment of waste, and therefore meets the definition of recycled water under Water Code 13050, to one where no treatment has occurred and is therefore not recycled water. During a conversation with Department of Health Services, staff confirmed that water which contains a mixture of recycled water and raw water can only be called a blend for regulatory and legal purposes, and is not recycled water although it will be regulated as such under Title 22 (Stone 2006).

The raw water to be provided as backup to the PEC and other users of the City's recycled water system will originate from the City's imported water supply. The San Diego County Water Authority (SDCWA) supplies 75 percent of the City's demand with water originating from Northern California and the Colorado River.

## CITY PIPELINE PROJECT

A new 0.9-mile, 12-inch permanent pipeline would be installed by the City under Hubbard Boulevard, a paved road approximately 2.8 miles northeast of the power plant. Other infrastructure includes a flow meter and a chlorination system within a Fiberglass Reinforced Polyester enclosure (City of Escondido 2005).

The City's new 12-inch pipeline would link the City's 30 inch SDCWA imported water pipe to the City's Leslie Lane Recycled Water Reservoir, a storage facility for the recycled water system. When the connection is opened, an air gap would exist between the raw water being added and the recycled water in the reservoir, preventing backflow and contamination of the city's potable water supply.

## ASSESSMENT OF IMPACTS

The potential impacts to water resources from the construction and operation of the raw water connection and the PEC's use of the backup raw water are described below. Staff's review of local water supplies, which identifies potential impacts, is independent of the Notice of Exemption under which the City is proceeding with its project to provide backup water to its recycled water system.

Staff's analysis focused on:

- The potential for soil loss or surface water contamination as a result of the City's action to construct a pipeline under Hubbard Boulevard,
- The potential for degrading water supplies in the local area,
- The potential for the use of the new water supply to significantly impact other water users, and
- The compatibility of the new water supply with existing LORS and the Energy Commission's 2003 guidance on the use of fresh water for power plant cooling.

## SOIL

The construction of the permanent pipeline would be in surface streets, and staff agrees with the project owner's conclusion that this action is unlikely to create an adverse impact to soil.

## SURFACE HYDROLOGY

Staff's review of the project owner's amendment petition resulted in no concerns related to surface water hydrology.

## WATER QUALITY

Because Palomar Energy Center was licensed to use of recycled water, and the compliance record has proven that the use of recycled water was reviewed and approved by all the appropriate agencies, the facility is designed to avoid cross-contamination of its cooling water with potable supplies or other water bodies. As such, the use of any backup supply will not cause impacts to public health or degradation of other water sources.

## REGIONAL WATER SUPPLY

The San Diego region, historically short on water supplies, is currently adding new storage and supply projects at a rapid pace. The demands of the PEC would not represent a significant impact to regional water supply. However, the City's water supplies, from which the PEC would draw its backup raw water, are more limited. The PEC requires 3.7 million gallons/day (mgd) of makeup cooling water. Staff calculates that this number represents 13 percent of the City's 2010 average daily water consumption. Staff confirmed that the City's existing water system has sufficient capacity to simultaneously meet the demands of current users while delivering backup water to the PEC and other recycled water customers, for limited periods. Based on yearly averages, if used intermittently as expected, the amount of raw water consumed by the PEC would not constitute a significant impact to other users in the Escondido area. For example, if the PEC operates on raw water for 20 days in a year, it would use the equivalent of 0.7 percent of the City's current annual water demand.

However, a tangible effect on other local users on a daily basis can be foreseen in the event of a lengthy recycled water outage, especially during a drought year. On average, the City requires 29.5 mgd of water. Of this, 75 percent or 22.1 mgd comes from imported water supplied by SDCWA. In the event of a failure at HARRF, a significant fraction (almost one-third) of the 29.5 mgd of imported water the City can receive would be diverted to the recycled water system to meet recycled water customer demands. Of that fraction, 3.6 mgd is required at the PEC (or more than 10 percent of the City's total daily supply.) In the future, HARRF's recycled water production may be expanded to18 mgd making an outage at the treatment facility even more of a burden on the City's supply. A lengthy outage could, under average conditions, cause a shortfall in the City's daily water balance. Staff notes that Lake Dixon provides significant backup water capacity for the City on the order of 847 million gallons; however, in the event of a drought where reservoir levels were low, an impact on City water customers is conceivable if the PEC draws water indiscriminately without an offset in water conservation in other areas.

The potential impact to City water supplies resulting from a long-term use of raw water by the PEC must be mitigated by placing limits on the number of consecutive days and total days in a year when raw water may be used. Staff has proposed two versions of condition of certification SOIL&WATER 5 that could mitigate long-term use of raw water.

## LAWS, ORDINANCES, REGULATION, AND STANDARDS

The LORS referenced in the January 2003 Staff Assessment (CEC 2003a) and the August 2003 Commission Decision (CEC 2003b) are applicable to this amendment petition and can be found in the pertinent portion of Appendix A of the Commission Decision (CEC 2003b). The project owner's amendment petition was reviewed for consistency against preexisting LORS and the following State and Local statues which were not available or reviewed specifically at the time of the Commission Decision.

## STATE

### Water Code 13050, Subdivision (n)

"Recycled water means water which, as a result of treatment of waste, is suitable for a direct beneficial use, or a controlled use that would not otherwise occur and is therefore considered a valuable resource."

### Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq)

In the 2003 IEPR, consistent with State Water Resources Control Board Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating it will approve the use of fresh water for cooling purposes by power plants it licenses only where alternative water supply sources and alternative cooling technologies are shown to be "environmentally undesirable" or "economically unsound."

### Warren-Alquist Act, Section 25500.5

The Energy Commission is required in this section to take into account the local need for power during its siting process:

"The commission shall certify sufficient sites and related facilities which are required to provide a supply of electric power sufficient to accommodate the demand projected in the most recent forecast of statewide and service area electric power demands…"

### RWQCB Orders 98-10 and 99-72

These two Orders restrict the quality and quantity of water that the HARRF can discharge to the Pacific Ocean. Under the Recycled Water Service Agreement between the project owner and Rincon (see Local below), the PEC is required to comply with these limits.

### CPUC General Order 167

General Order 167, which became effective on September 2, 2005, introduced Operating Standards for electric generation facilities in California. Operating Standard 22 includes the provision to "maintain contingency plans to secure necessary personnel, fuel, and supplies." Earlier drafts of the Order defined supplies as "including, but not

limited to, all gases, consumables and cooling water necessary to operate the operating facility at full available power."

## LOCAL

### Recycled Water Service Agreement

Section 7.2 states that neither Rincon nor the City shall be responsible or liable for any damage, harm, or economic loss suffered by PEC's project owner due to an interruption of supply. In addition, neither Rincon nor the City are responsible for the supply or provision of backup or reserve supply beyond those stored at HAARF during periods of service interruptions.

Under the First Amendment to the Recycled Water Service Agreement, Section 3.4.2.3, Escondido and Rincon were to have employed their best efforts to ensure recycled water was available on October 1, 2005 at a rate of 5,000 gallons per minute (peak) and 3,000 gallons per minute during operations (average). Under the Second Amendment, this date was changed to November 21, 2005.

## CONFORMANCE WITH LORS

The proposed project change would not violate any of the LORS considered in the original Commission Decision. However, LORS enacted since the Decision require consideration as they apply to the proposed changes. The Energy Commission's 2003 IEPR policy on the use of fresh water at power plants is of primary concern of staff.

Energy Commission policy adopted in the 2003 IEPR forbids the use of fresh, or raw, water for power plant cooling unless the alternatives are "environmentally undesirable" or "economically unfeasible." This amendment would allow the use of raw water when recycled water service from the City is interrupted due to malfunction or maintenance of the system.

No power plant certified since 2003 has been allowed to use raw or fresh water as a backup supply to reclaimed water, although Energy Commission staff propose to allow one project (San Francisco Electric Reliability Project-SFERP) currently under review to use raw water under stringent restrictions involving conservation measures and limits on raw water use. In that case, staff weighed the economic and public benefit of SFERP's power against the public and environmental value of fresh water, and Palomar will require a similar balancing test. Given the significant need for electricity in the San Diego region, the PEC should be able to use raw water as backup when recycled water fails and the reliability of the region's power is at stake. To remain consistent with LORS, the use of raw water must be prohibited at all other times, as long as it is not "economically unfeasible" to do so. Staff proposes that raw water use be allowed at the PEC during the summer and otherwise only during CA-ISO electrical system emergencies. A 48-hour window is suggested as one alternative for the power plant to continue to operate when notified that raw water has entered the City's recycled water system, but after that time, the PEC must shut down if the power is not needed (as it is during the summer or a CA-ISO declared emergency.) Such a condition will provide

enforceability and an incentive for Palomar to resolve cooling water reliability issues. These operational restrictions will not be economically unfeasible as recycled water outages should already be rare and will assuredly become more infrequent if the HARRF is improved as recommended by staff in two new conditions of certification described below.

Staff recognizes that conditions which impose operational restrictions in a market-based industry are a concern for the project owner and have the potential to be economically infeasible. We therefore offer a second proposal centered on shorter notification times, more restrictive use unless Compliance Project Manager (CPM) approval is obtained, and the imposition of a fee payable to local water conservation programs to comply with the 2003 IEPR policy against raw water use.

Several Commission Decisions from 1999 to 2003 approved the use of recycled water at power plants while making specific provisions for raw or potable water backup supply (see Table 1 at the end of this document). Some power plants have never used their backup supply after several years of operation. In conversation with officials at the Delta Diablo Sanitation District (DDSD 2006), staff learned that the use of newer technologies at treatment plants can allow production of recycled water 24 hours, 7 days a week with practically 100 percent reliability -- the ideal situation for power plant customers. The Energy Commission could ensure the implementation of its 2003 IEPR policy by requiring that the HARRF be as modern and reliable as possible as a condition of allowing the PEP to have a raw water backup supply. Staff's proposed conditions SOIL&WATER 8 and SOIL&WATER-9 would enact this strategy.

## DISCUSSION OF PROPOSED CONDITIONS OF CERTIFICATION

The project owner's amendment petition suggested that raw water use be permitted without notification to the CPM if used for less than three consecutive days and would require CPM approval if the use would go beyond 14 days in duration.

Soil and Water staff's analysis recommends two alternative approaches which are summarized as follows.

- Staff's Raw Water Use Proposal A:

  SOIL&WATER 5 would be revised to allow for raw water use only during the summer or when there is an electrical emergency in Southern California or statewide. A $10,000/day fee would be paid to a water conservation program if raw water use occurs. After three years, raw water may no longer be used regardless of emergency.

- Staff's Raw Water Use Proposal B:

  SOIL&WATER 5 would be revised to require notification of the CPM any time raw water is used, would restrict raw water use to no more than seven consecutive days and to no more than 20 days in a calendar year without CPM approval. This alternative would also include that a $10,000/day fee be paid to a local water conservation program whenever raw water is used for cooling.

Proposals A and B both contain two new Conditions of Certification:

SOIL&WATER 8: Requires project owner to make a full report on the 2004, 2005, and 2006 outages at the HARRF.

SOIL&WATER 9: Requires the project owner to prepare a work plan by October 1, 2006 to correct reliability problems, and would require solutions at the HARRF or on the project site to be implemented by October 1, 2009.

The Applicant proposes in their modification of Condition of Certification SOIL&WATER 5 that the Commission should allow liberal use of raw water at the PEC for two basic reasons: because the use of raw water is out of their control and because they did not find a significant impact from its use. Their proposal includes the notification of the Energy Commission's CPM when raw water is used for more than three consecutive days, and requires CPM approval of use whenever the raw water is used for more than 14 consecutive days. Staff reviewed the proposed condition of certification and determined the structure of this condition would not provide the Energy Commission timely and accurate information on the use of raw water, would allow for indefinite use of raw water, and would not lead to the correction of any problems at the HARRF.

First, the requirement for notification only after more than three consecutive days of raw water use would mean that the Energy Commission would never be informed of uses that are for only one or two days at a time. For example, if Commission staff was called by the press or public for more information on the raw water use at the power plant, staff would be unable to provide accurate information about the gallons used and dates of use except in cases where the use exceeded three days. Secondly, the proposed condition does not limit the number of days the project owner could use raw water in any calendar year. Back-to-back 14-day periods of use could continue indefinitely. Lastly, the proposed modification does not create a solution, it only asks for approval of upset conditions at the HARRF. During the licensing proceeding, the likelihood of an upset condition was thought to be very low; however, it is now apparent that outages must be predicted and addressed. Instead of treating them as inevitable, it could be possible to mitigate these outages with improvements at the HARRF.

In contrast to the applicant, staff is proposing two alternative approaches (Proposal A and Proposal B). In both, staff's primary focus is not on approving the events that are out of the project owner's control simply because they are out of their control, but rather to compel the project owner to secure a reliable supply of recycled water which is consistent with the Commission's Decision and policies, and to accomplish this within a reasonable time frame. Staff also believes the PEC should be limited in its use of raw water until a reliable supply of recycled water can be secured because there is a potential for impact to other users during drought conditions. A reliable supply of recycled water in the area could be achieved without undue economic burden and could provide a benefit to other users. Staff concedes that reasonable cost-sharing should be implemented to offset the initial burden of setting up a reliable supply, and staff is willing to work with the project owner to set up an equitable system.

Staff's proposals have several advantages over the project owner's proposal. First, the notification requirements are tightened so the Energy Commission always has timely and accurate information about raw water use. In Proposal A, the criteria to balance the need for raw water with the need for electricity is clearly defined, and when the power plant does not meet that criteria, it is not allowed to produce power using raw water. In Proposal B, the CPM is given the discretion to allow or deny the extended use of raw water, taking into account the need for electricity or any other reasons which might arise, allowing some flexibility. Both Proposals A and B require the project owner to pay $10,000 each day raw water is used to a CPM-approved water conservation program. The requirement of a fee to water conservation programs when raw water is used at the PEC is an attempt to mitigate potential water supply impacts and reconcile the fact that the terms of PEC's original license, along with 2003 IEPR policy, would be violated while a solution is found. Additionally, two new conditions proposed by staff will require the project owner to begin the process of finding a solution to the problem on a defined schedule.

Staff recognizes that Proposal A, which restricts the PEC's operations, may bring disadvantages for both the applicant and for staff. For the applicant, it may be difficult to operate profitably in a market system with restrictions imposed on when the PEC may or may not run. Energy Commission staff from the Electricity Analysis Office believe that Proposal A's conditions will not prevent the project from obtaining a lucrative Reliability Must-Run contract from the CA-ISO, however.

As a result of these concerns, staff drafted alternative language as Proposal B to serve as a compromise option allowing raw water to be used up to a limit while also requiring system improvements to provide the maximum reliability feasible for the HARRF. The main disadvantage of this option is that no clear rules are set for when raw water use past the limit is appropriate. Any decision to allow the PEC to operate if and when 20 total days or seven consecutive days of use are exceeded will be left to the CPM's best judgment. This option relies on the mitigation fee of $10,000 per day of use to balance the benefits of fresh water for the region with the need for the PEC's power. Energy Commission Policy and the original Commission Decision for the PEC were established on a high public value of fresh water, and a water conservation fee may or may not be adequate to offset the loss of the water when the power produced with it is not absolutely necessary.

## CONCLUSIONS AND RECOMMENDATIONS

Staff recommends discussions be held with all interested parties at the Committee workshop scheduled for April 5, 2006 to clarify the economic and environmental feasibility of adopting one of the two staff alternatives.

Staff's preliminary analysis recommends amending one condition of certification published in the Commission Decision (SOIL&WATER 5) to allow for limited raw water use and adding two conditions of certification (SOIL&WATER 8 and 9) to increase the reliability of the recycled water supply.

## Project Owner's Proposal

**SOIL&WATER 5:** The PEP shall use recycled water for cooling tower makeup, process water, landscape irrigation and all other non-potable uses. If recycled water is unavailable due to maintenance or events beyond the control of the City of Escondido, the PEP may use raw water supplied from the emergency water supply system operated by the City of Escondido. Operation of the facility on the backup water supply longer than three consecutive days requires notification of the Energy Commission CPM. Operation of the facility on backup water shall not continue for more than 14 days without CPM approval The PEP shall comply with all Title 22 California Code of Regulations requirements.

**Verification:** At least 60 days prior to the start of construction of the water supply system, the project owner shall submit to the CPM its water supply system design demonstrating compliance with this condition. Those required features shall be included in the final civil design drawings submitted to the CBO as required in Condition of Certification CIVIL 1. Approval of the final design of the water supply and treatment system shall be obtained prior to the start of construction of the systems**.** The project owner shall notify the CPM in writing if the backup water supply is used for more than three consecutive days. The notification should explain the cause of the interruption and the anticipated time when tertiary treated effluent will again be available. Upon notification of the delivery of backup water, the project owner shall record the amount of use of such water. The project owner shall provide a weekly report to the CPM for as long as the use continues concerning the amount of water used and progress by the City of Escondido to rectify any interruption of delivery of tertiary treated water.

*Note:* The Project Owner's Proposal is reproduced here without modification. If this language is adopted, staff recommends that "tertiary treated effluent/water" be replaced by "recycled water" so as to use consistent terminology throughout the condition.

## Staff's Raw Water Use Proposal A

**SOIL&WATER 5:** The PEC shall use recycled water for cooling tower makeup, process water, landscape irrigation and all other non-potable uses. Raw water provided by the City of Escondido may be used as backup to recycled water until September 1, 2009 but only during interruptions of recycled water which occur under one of the following conditions:

1. From May 15 – October 15, 6am to 10pm;

2. When the CAL-ISO has declared Restricted Maintenance Operations for either Southern California (SP15) or the statewide ISO control area; or

3. When the CAL-ISO has declared a Stage I, II, or III emergency for either Southern California (SP15) or the statewide ISO control area.

If the PEC's recycled water supply from the City is interrupted and none of these conditions are met, the PEC shall cease operations within 48 hours of being notified by the City that raw water has entered the City's recycled water system. Operations may resume when the project owner obtains notification from the City that raw water use has ceased.

The PEC shall comply with all Title 22 California Code of Regulations requirements while using either source of water. For each calendar day, or fraction thereof, where raw water use occurs, a fee of $10,000 per day shall be paid to a local water conservation program approved by the CPM. Raw water shall not be used at the PEC after September 1, 2009.

The project owner shall submit to the CPM two copies of any amendments/changes made to the water supply contract between the City and the PEC related to the operation of the raw water backup supply. The CPM shall be notified of any violations of contract requirements, limits or amounts.

**Verification:** At least 60 days prior to the start of construction of the water supply system, the project owner shall submit to the CPM its water supply system design demonstrating compliance with this condition. Those required features shall be included in the final civil design drawings submitted to the CBO as required in Condition of Certification CIVIL 1. Approval of the final design of the water supply and treatment system shall be obtained prior to the start of construction of the systems.

The CPM must be notified in writing within 24 hours of any time raw water is delivered to the PEC. Following notification, an event report shall be provided to the CPM within 30 days identifying the cause of the interruption of recycled water, the anticipated time when recycled water will again become available, and a solution to prevent the problem from reoccurring. The event report shall also include the duration of the raw water use, the quantity of water used during the outage, and the local and statewide CAL-ISO conditions under which the water use occurred. The quantity of water shall be reported in gallons for each day of its use, and the duration reported in hours. The Annual

Compliance Report shall report raw water use following the protocol for recycled water use in SOIL&WATER 6. Copies of contract amendments/changes must be submitted to the CPM within ten (10) days of their adoption/execution date. The Annual Compliance Report shall include a proposal that identifies which entity(s) could best use the water conservation funds for the upcoming calendar year, for CPM review and approval. The project owner shall provide full payment to the CPM-approved water conservation program within 30 days following the submittal of the event report.

**SOIL&WATER 8:** The project owner shall submit to the CPM a report on the 2004, 2005 and 1st quarter 2006 recycled water outages including the following:

1. The cause(s) of reliability problems experienced at HARRF in 2004, 2005 and 1st quarter 2006;
2. The steps that were subsequently taken to resolve those issues at HARRF; and
3. A list of system improvements or other actions that can be implemented to ensure the highest feasible reliability for HARRF's recycled water production.

**Verification:** The project owner shall submit the 2004, 2005 and 1st quarter 2006 outage report to the CPM for review and approval by July 1, 2006.

**SOIL&WATER 9:** The project owner shall prepare a work plan detailing system improvements at HARRF that would improve, to the maximum extent feasible, the reliability of the PEC's recycled water supply. The work plan shall include all feasible actions identified in the report required in SOIL&WATER 8, in reports following future raw water use notifications required in SOIL&WATER 5, or at the request of the CPM. The first draft of the plan shall be submitted to the CPM for review and approval by October 1, 2006, and may be updated after that date at the request of the CPM or project owner.

Work plan Protocol:

- The work plan shall describe system improvements that improve reliability at HARRF, their costs and schedule for their implementation.
- The improvements included in the work plan shall be implemented by October 1, 2009.
- The project owner shall fully fund those improvements that primarily improve service to the PEC.
- When improvements enhance the reliability of HARRF's service to all recycled water customers, the project owner shall work with the City to establish an equitable sharing of costs. If an equitable cost sharing agreement can not be reached, the CPM will determine the PEC's fair share.

**Verification**: By October 1, 2006, the project owner shall submit the work plan to the City of Escondido for review and comment and the CPM for review and approval

Beginning on January 1, 2007, quarterly water-use progress reports shall be submitted to the CPM for review and approval. These reports shall include the status of implementation of the work plan and any if necessary, any revisions made to the work plan as a result of new information or analysis. The quarterly progress reports shall continue to be submitted until all work under the plan is completed and shall resume if a later revision to the work plan includes additional work to be completed.

## Staff's Raw Water Use Proposal B

**SOIL&WATER 5:** The PEC shall use recycled water for cooling tower makeup, process water, landscape irrigation and all other non-potable uses. If recycled water is unavailable due to maintenance or events beyond the control of the City of Escondido (City), the PEC may use raw water supplied from the emergency water supply system operated by the City. The project owner shall notify the CPM immediately whenever raw water is used. The project owner shall provide reports detailing the outages to the CPM. Raw water shall not be used for more than seven consecutive days or 20 days in a calendar year without CPM approval. The PEC shall comply with all Title 22 California Code of Regulations requirements while using either source of water.

The CPM may request that system improvements preventing reoccurrence of an outage be included in the work plan required by SOIL&WATER 9.

For each calendar day, or fraction thereof, when raw water use occurs, a fee of $10,000 per day shall be paid to a local water conservation program.

**Verification:** At least 60 days prior to the start of construction of the water supply system, the project owner shall submit to the CPM its water supply system design demonstrating compliance with this condition. Those required features shall be included in the final civil design drawings submitted to the CBO as required in Condition of Certification CIVIL 1. Approval of the final design of the water supply and treatment system shall be obtained prior to the start of construction of the systems.

The CPM must be notified in writing within 24 hours of any time raw water is delivered to the PEC. Following notification, an event report shall be provided to the CPM within 30 days identifying the cause of the interruption of recycled water, the anticipated time when recycled water will again become available, and a solution to prevent the problem from reoccurring. Upon notification by the City of the delivery of backup water, the project owner shall record the amount used in gallons/day and the duration of use in hours. The project owner shall provide a weekly report to the CPM for as long as the use continues concerning the amount of water used and progress by the City of Escondido to rectify any interruption of delivery of recycled water. The Annual Compliance Report shall include a proposal that identifies which entity(s) could best use

the water conservation funds for the upcoming calendar year, for CPM review and approval. The project owner shall provide full payment to the CPM-approved water conservation program within 30 days following the submittal of the event report.

The Annual Compliance Report shall include raw water use information following the protocol for recycled water use in SOIL&WATER 6. When applicable, the Annual Compliance Report shall also include evidence that funds were deposited with the CPM-approved water conservation program.

**SOIL&WATER 8:** The project owner shall submit to the CPM a report on the 2004, 2005 and 1st quarter 2006 recycled water outages including the following:

2. The cause(s) of reliability problems experienced at HARRF in 2004, 2005 and 1st quarter 2006;

4. The steps that were subsequently taken to resolve those issues at HARRF; and

5. A list of system improvements or other actions that can be implemented to ensure the highest feasible reliability for HARRF's recycled water production.

**Verification:** The project owner shall submit the 2004, 2005 and 1st quarter 2006 outage report to the CPM for review and approval by July 1, 2006.

**SOIL&WATER 9:** The project owner shall prepare a work plan detailing system improvements at HARRF that would improve, to the maximum extent feasible, the reliability of the PEC's recycled water supply. The work plan shall include all feasible actions identified in the report required in SOIL&WATER 8, in reports following future raw water use notifications required in SOIL&WATER 5, or at the request of the CPM. The first draft of the plan shall be submitted to the CPM for review and approval by October 1, 2006, and may be updated after that date at the request of the CPM or project owner.

Work plan Protocol:

- The work plan shall describe system improvements that improve reliability at HARRF, their costs and schedule for their implementation.

- The improvements included in the work plan shall be implemented by October 1, 2009.

- The project owner shall fully fund those improvements that primarily improve service to the PEC.

- When improvements enhance the reliability of HARRF's service to all recycled water customers, the project owner shall work with the City to establish an

equitable sharing of costs. If an equitable cost sharing agreement can not be reached, then the CPM will determine the PEC's fair share.

**Verification**: By October 1, 2006, the project owner shall submit the work to the City of Escondido for review and comment and the CPM for review and approval

Beginning on January 1, 2007, quarterly progress reports shall be submitted to the CPM for review and approval. These reports shall include the status of implementation of the work plan and any if necessary, any revisions made to the work plan as a result of new information or analysis. The quarterly progress reports shall continue to be submitted until all work under the plan is completed and shall resume if a later revision to the work plan includes additional work to be completed.

## REFERENCES


California ISO. 2005. Preliminary 2006 Summer Operations Assessment. November 30, 2005.

CEC (California Energy Commission). 2003a. Staff Assessment for Palomar Energy Project (01-AFC-24). January 24, 2003.

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City of Escondido. 2005. Notice of Exemption; Raw Water Line Extension to Leslie Lane Reservoir/ ER 2005-03. signed on October 18, 2005.

DDSD (Delta Diablo Sanitation District). 2006. Personal communication of Gary Darling, Delta Diablo Sanitation District, with Brian Ellis, California Energy Commission. February 13, 2006.

Palomar Energy, LLC. 2006. Petition for Soil and Water Condition Modification. January 13, 2006.

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**Table 1 Backup Supplies for Reclaimed Water based on Information Found in Commission Decision or the Final Staff Assessment**

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| **Originally Approved for Use of Recycled Water by Energy Commission** | | | | | | |
| Los Medanos Power Plant (Pittsburg)<br><br>8/17/1999 | Operational | Delta Diablo Sanitation District | S&W-5 | 4,000 (est.) | Potable water from City of Pittsburg | S&W-5: If use backup for more than 3 consecutive days, then notify the CPM. Continued use for more than 2 weeks requires approval. |
| Delta Energy Center<br><br>2/9/2000 | Operational | Delta Diablo Sanitation District | S&W-4 | 5,000 | Contra Costa Canal water from surplus created when Gaylord Industries is shut down | S&W-4: If use backup for more than 14 consecutive days, then notify CPM explaining the cause and anticipated return date to reclaimed |
| Mountainview<br><br>3/21/2001 | Under construction – near completion | City of Redlands WWTP | WR-1, WR-8, WR-9 | 7,500 | Groundwater wells on-site which draw from contaminated mid-aquifer and not potable | None |
| Otay Mesa<br><br>4/18/2001 | Construction | | S&W-7 | 400 | None identified. | None |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| Three Mountain<br><br>5/16/2001 | On Hold | BWD Publicly Owned Treatment Works | S&W-7 (Recycled water should be used when it is an option) | 890 | None identified. | None |
| Metcalf Energy Center<br><br>9/24/2001 | Operational | SBWR/ City of San Jose | S&W-1 | 3,900 | Potable water (supply is from the owner's groundwater wells) | S&W-1: Not to exceed 45 days in any one year. Must provide written notice to CPM. |
| Valero Cogen<br><br>10/31/2001 | On Hold | City of Benicia WTP | WR-2 | 314 | None identified. | None |
| Los Esteros Critical Energy Facility<br><br>7/2/2002 | Operational | San Jose/Santa Clara Water Pollution Control Plant | S&W-6, S&W-7, S&W-9 | 560 | None identified | None |
| Russell City Energy Center<br><br>9/11/2002 | On Hold | City of Hayward Water Pollution Control Facility | S&W-6 | 3,700 | None identified | None |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| Magnolia Power Plant<br><br>3/5/2003 | Operational | City of Burbank RWP | S&W-5, S&W-6, S&W-7 | 5,100 | City of Burbank potable water containing at least 25 percent properly treated contaminated groundwater or properly treated groundwater from on-site wells | S&W-5: Must calculate failure rate on a moving average and must report failure rate in annual report, and confer with CPM when have failures. Owner may make a new amendment with project design change if too many failures occur.<br><br>S&W-6: Report potable when greater than 200 AFY as backup supply |
| Malburg Generating Station (Vernon)<br><br>5/27/2003 | Operational | CBMWD | S&W-4, S&W-5, S&W-7 | 1,500 | Potable water | S&W-5: Use cannot continue for more than 9 days (216 hours) per calendar year or owner is subject to noncompliance procedures and enforcement action |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| Palomar Energy Project<br><br>8/6/2003 | Under construction – near completion | Hale Avenue Resource Recovery Facility | S&W-5 | 3,600 | None identified.<br><br>Request to use the City system when have a backup supply of raw water (given to Energy Commission in Jan. 2006). | None |
| East Altamont Energy Center<br><br>8/20/2003 | On Hold | Mountainhouse Community Service District | S&W-5, S&W-6, S&W-7, S&W-8 | 4,600 | Raw water from BBID from Canal 45 until recycled water is available. | S&W-5: Up to 10 percent of the power plants actual use in any year. Must notify CPM if going to exceed 10 percent limit or if canal water not available. |
| SMUD Consumnes<br><br>9/10/2003 | Operational | Not applicable | Only if they initiate their second phase | Not applicable | Not applicable | Not applicable |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| Inland Empire Energy Center<br><br>12/17/2003 | Under Construction | Eastern Municipal Water District | S&W-4, S&W-5, S&W-6 | 4,200 | Eastern Municipal Water District is expected to augment its reclaimed water system with raw water during the early years | S&W-5: Owner must cooperate with EMWD and report actual amounts of raw water to the CPM. Maximum acre-feet limits set on a yearly basis are:<br><br>2005: 1,000<br>2006: 800<br>2007: 600<br>2008: 400<br>2009: 200<br>2010: 100<br>after 2010: 100<br><br>May use more raw water "due to an act of God, a natural disaster, an unforeseen emergency, or other unforeseen circumstances outside the control of the project owner", but must confer with the CPM to restore recycle |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| San Joaquin Valley Energy Center<br><br>1/21/2004 | On Hold | Fresno-Clovis WTF | S&W-4, S&W-5, S&W-6, S&W-7, S&W-8 | 5,340 | None identified. | None |
| Walnut Energy Center<br><br>2/18/2004 | Operational | City of Turlock WWTP | S&W-5, S&W-6, S&W-7, S&W-8 | 1,800 | Ground water bridge supply until reclaimed water is available. | S&W-6: Not to exceed 54 AF (amount used to irrigate agricultural land previously) |
| Tesla<br><br>6/16/2004 | On Hold | City of Tracy WWTP | S&W-9, S&W-10, S&W-11, S&W-12, S&W-13 | 5,100 | City of Tracy (no water type identified) | S&W-9: Secure a user's agreement which identifies a backup water supply and ensure following NPDES Waste Discharge requirements |
| Roseville Energy Park<br><br>4/13/2005 | Under Construction | PGWWTP | S&W-5S&W-6, S&W-7 | 1,247 | None identified. | None |
| **Seeking Approval for Use** | | | | | | |
| SFERP | PSA out. FSA out in Feb. 2006 | Sanitary sewer near power plant, and treat to tertiary standards on-site | Expected | 582 | Potable water from city supply (Hetch Hetchy) | |

| Power Plant/ Date of Comm. Decision | Status as of January 2006 | Source of Recycled Water | Conditions of Certification Relating to Use | Amt. Needed Annually (Acre-feet) | Backup Supply | Restrictions on Use |
|---|---|---|---|---|---|---|
| Walnut Creek Energy | Data Adequate on Feb. 1, 2006 | Roland Water District / San Jose Creek WWRP | Expected | 827 | None identified | |
| Sun Valley Energy | Data Adequate on Feb. 1, 2006 | Eastern Municipal Water District | Expected | 851 | None identified | |
| Vernon Power Plant | Seeking Data Adequacy | Central Basin Municipal Water District | Expected | 4,048 | Potable water from City supply | |
| **Seeking Approval/Approved for Retrofit and use of Reclaimed water by Energy Comm.** | | | | | | |
| Gilroy Foods CoGen<br><br>7/13/2005 | Operational | South County Regional Wastewater Authority | WQ 6-9, WQ 6-10 | 860 | Potable water (supply is from the owner's groundwater wells) | WQ 6-9 Notify CPM if recycled water is unavailable more than 30 consecutive days |
| High Desert | Expect petition in 2006 | | | | No data available | |